



Instruction Manual **MASTERIA** compressed air dryer

INSTALLATION, USE, MAINTENANCE

Models

MPE 006 to MPE 150



Climatic - Treatment of the Air

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READ THIS MANUAL ATTENTIVELY BEFORE INSTALLING OR USING THE APPLIANCE



These symbols inform you about dangers and the measures to be taken to avoid them.

The comments in bold type emphasise the key points to observe to ensure you use your drier correctly.

1 Introduction

1.1 Principle

Your Mastéria drier dries air by refrigeration. Hot, wet compressed air entering the Mastéria drier is cooled by an exchanger down to the programmed dew point temperature. The steam which condenses in liquid form during cooling is separated mechanically and is then purged by an electronic system with a time-out. The compressed air leaving the appliance is dry.

1.2 Originality

Your Mastéria drier has several unique features compared with the other products on the market:

- Reduced consumption due to an air-to-air heat exchanger in all models in the range above the MPE010. The dry, cold air from the drier is used to pre-cool the hot, wet air inlet.
- Mechanical separation guaranteed in all operating modes by a condensate separator developed from 10 years experience.
- High quality, anti-corrosion construction that is easy to maintain and very strong.
- Electronic regulation with a user-friendly, clear, digital display panel.

Finally, and especially,

- **DTM® technology**, providing a host of additional benefits
 - Robustness: DTM® technology eliminates fragile, pressure-operated valves
 - Economy: DTM® technology only uses minimum power
 - Safety: DTM® technology guarantees the total integrity of the compressed air circuit from any risk of contamination by the cooling agent. This ensures that air quality meets the highest standards.
 - Performance: DTM® technology guarantees you get exactly the dew point you set.

1.3 Standards

The air delivered by Mastéria dryers complies with ISO standards 85 731 and 7183.

Mastéria range dryers comply with the following European directives:

- 89/336: " Electromagnetic Compatibility "
- 89/392/EEC: " Machine Safety "
- 73/23/EEC: " Low Voltage"
- 97/23/EEC : "Pressure Equipment"

2 Safety

Everyone involved in installing, using and servicing Mastéria dryers is concerned by this manual and must have read and understood the instructions given below.



Danger of electric shock and burns: every badly connected or misused electrical appliance is dangerous. For your personal safety and that of all the people who will approach this appliance, rigorously follow all the security instructions given in this manual. All interventions on the refrigeration circuit must be carried out by specialists. Every leak or anomaly must be pointed out to qualified people immediately.

2.1 General precautions

Compressed gases which can be dried

Your Mastéria drier is designed to dry compressed air. You must obtain prior authorisation from the manufacturer in writing before drying any other gas.

Precautions to take before drying compressed air

Ensure that the free parts of the components designed to expel the compressed air are blocked sufficiently to prevent whipping shocks caused by stiffening when the compressed air flows through them.

Precautions during installation

The installation must be carried out by qualified personnel reporting to a qualified supervisor.

The power supply to the drier must be protected by thermal fuses or relays as shown in this manual.

All the electric connections must be complying with local regulations. The drier and its auxiliaries must be earthed and protected from short-circuits and overloads.

When the master switch is closed, the electric voltage reaches can kill. Consequently, take every precaution when working on the electric circuit.

Do not open the electric circuit access panels with the equipment switched ON unless necessary for tests, measurements or adjustments. This task must only be carried out by qualified personnel, using the appropriate equipment and protected from the inherent dangers.

For a single-phase power supply, fit a neutral conductor earthed in the transformer station (system TN as stipulated in IEC 364 - HD 384 - IEC 64-8) or by the electric power utility (TT system).

In systems with several dryers, install manual valves so each machine can be isolated separately.

Fit a safety valve to each tank or appliance containing air at a pressure higher than atmospheric pressure. Fit a safety valve between the compressor and the first by-pass valve.

If raised access platforms are installed around the drier, take care that they do not impede use or access for lifting or dismantling components. Platforms and steps must be made from gratings or tiled, and be equipped with safety handrails on all open sides.

Precautions during operation

Dryers must only be operated by qualified personnel reporting to a qualified supervisor.

If the temperature of pipework or any other parts which could be touched accidentally by the personnel during normal operation could exceed 60°C (140°F), they must be protected and insulated.

All air pipes must be painted or clearly marked as stipulated in local safety regulations.

Do not remove or touch the safety devices, protection or insulation fitted to the drier or its auxiliaries.

Precautions for maintenance and repairs

Dryer maintenance, revision and repair must be carried out by qualified personnel reporting to a qualified supervisor.

When scrapping equipment, it must not pollute conduits or rivers. Do not burn materials which could pollute the air. Only use storage methods which respect the environment.

Only use original spare parts supplied by the equipment manufacturer.

Keep a log of all the interventions carried out on the drier and its auxiliaries. The frequency and the nature of the work completed during a given period can reveal abnormal operating conditions which require correction.

Only use the cooling gas specified on the machine plate.

Check that all instructions relating to operation and maintenance are respected and that the drier, the auxiliaries and all safety devices are serviceable.

Always keep the drier clean. During maintenance work, protect the components and plug the openings exposed with clean rags, for example.

Never weld or carry out work which releases heat in the vicinity of a system containing oil. Before carrying out such operations, all components which contain oil must be emptied and washed with steam, for example.

To prevent operating temperature and pressure rises, check and clean all heat exchanger surfaces regularly, (for example, the condensing unit fins). Schedule cleaning for each drier.

Take care not to jam the safety valves or other pressure limitation devices with paint, oil, dirt, etc.

Take all appropriate precautions when welding or carrying out any other repairs which release heat, flames or sparks. Protect all components in the vicinity with non-flammable material. Drain lubrication system parts or components containing oil if working close to them.

Never use a naked flame as a light to inspect the drier.

Before dismantling a drier make sure that all the moving and heavy parts are attached. After the intervention, check that no tool rag or waste has been left inside.

Check the direction of rotation of the electric motors, and, in particular, the fan, when starting the machine after an intervention on the electric connections or the power supply cut-out.

All protection systems must be reset after repair or maintenance.

Do not clean components with flammable liquids when the drier is operating.

2.2 Cooling fluid safety notice

Mastéria dryers use a cooling gas of the type shown on the manufacturer's plate on the appliance.

Very dirty refrigerating circuits, for example following a compressor fire, must only be cleaned by a qualified refrigeration technician. Comply with current safety laws and regulations.

The refrigerant is not flammable, explosive, toxic or corrosive in normal conditions. When released into the atmosphere, it becomes a heavier-than-air and almost odourless vapour. In contact with a naked flame or a very hot metal surface, this vapour breaks down into highly irritant products which are immediately noticeable.

If the refrigerant gas leaks, it is advisable to air the buildings concerned abundantly and to shut down all the systems likely to break down the vapours by flame or heat immediately.

Every intervention on the cooling circuit must be carried out by qualified personnel approved by CTA.

In the event of:

- **chilblains, warm up the frozen skin as soon as possible.**
- **splashes in the eyes, rinse abundantly with running water.**

Then consult a doctor immediately.

If non-flammable chlorinated hydrocarbons are used for cleaning, take all safety precautions to prevent injury from the toxic vapours released.

Before removing any panel or dismantling any part of the unit:

1. Turn off the power supply to the drier by setting the master switch to "OFF " and removing the fuses.
2. Stick a label on the lever of the master switch and install a «WORK IN PROGRESS - DO NOT ENERGISE " warning panel. Do not touch the master switch and do not try to start the drier if the warning panel is in place.
3. Close the by-pass valves up- and down-stream from the drier and install on each valve a "WORK IN PROGRESS - DO NOT OPEN " warning panel. Only reopen these valves when restarting the drier.
4. Check that all pressurised components in the system have reverted to atmospheric pressure. Check that all the pressure gauges indicate a pressure of zero bars, i.e. atmospheric pressure.

3 Installation



The installation procedures described in this chapter must only be executed by qualified personnel. The following procedure must be scrupulously respected or the safety of all staff could be at risk.

3.1 Inspection

Immediately after unpacking the drier, check that it is undamaged. If necessary, make a damage claim to the carrier who delivered the equipment.



Never install or use an appliance damaged during shipment.

3.2 Handling

If using hoists to lift the equipment make sure they are safe. To prevent accidents, check that all chains, hooks, rings, slings, etc., are in good condition and suitable for the load. They must be tested and approved as stipulated in local safety regulations. Cables, chains and ropes should never be attached directly to the lift lugs. Always use a correctly positioned ring or a hook. Lay out the lift so that hoisting cables do not form excessively tight curves.

Use a bar to avoid side loads on hooks and lugs. Stand at a safe distance away from the load while it is being lifted. Ensure that lift accelerations and velocities are within safety limits and never leave a load suspended longer than necessary.

3.3 Layout



Throughout installation, stop compressed air production of to avoid risks to installation personnel.

1. The dryer should be installed on a flat surface suitable for the weight of the appliance in a closed, dry, room which cannot freeze. Access to the room must be restricted to qualified maintenance and test personnel. The room must be sufficiently ventilated with clean air free from flammable gases or solvents. The drier must not be exposed directly to heat sources. The temperature of the room must not exceed 43°C.

Minimum and maximum ambient temperatures are specified on the manufacturer's plate on the drier. Unless otherwise stated, dryers are designed to function in ambient conditions at a temperature of 25°C. Higher temperatures may reduce the capacity of the drier and result in an increase in the dew point. Usually this does not cause a problem if the compressed air network is also in higher ambient temperature conditions.

2. Check that the drier is not surrounded by equipment which does not comply with European electromagnetic compatibility directives as interference could deteriorate appliance operation. Leave a minimum 1 m space between the drier and all other electrical appliances.
3. Leave adequate space around the drier for maintenance. Position the drier to ensure that cooling air cannot recirculate towards the suction ports. Check that the drier does not suck

in hot air from the compressor cooling systems, the final cooler or any other appliance.

Remark: The cooling air used by the dryer comes in by the rear grid and comes out by the front grid

4. The position of the drier in the compressed air distribution system depends on the way the compressed air will be used (see installation plan).
 - The drier must be installed **downstream** from the tank if the compressor pumps intermittently or if total demand for air does not exceed the total compressor flow rate capacity (the usual case).
 - The drier should be installed **upstream** from the tank if the tank has been dimensioned to permit wide fluctuations in compressed air demand or if peak demand exceeds maximum compressor flow rate capacity.
5. Fit by-pass valves between the drier inlet and exhaust so that maintenance can be carried out without having to shut down the compressed air supply to the network (see diagram below). During installation, the upstream and downstream valves must be closed.
6. Additional fittings
 - fit a class 4* type **P** solid pollutants filter (15m, µ8mg/m3) upstream from the drier
 - fit a class 1* type **S** total oil 1filter (0.01mg/m3) downstream from the drier to remove dust and oil from the compressed air. **Only use filters equipped with an automatic purge system.**

7. Connect the compressed air to be treated to the drier inlet (lower port) with pipes which do not place stresses and strains on the appliance.
8. The compressed air to be treated must be taken from the upper part of the tanks to reduce the risk of transporting liquid phase water or particles. This will extend the service life of the appliance.
9. Connect the treated compressed air to the exhaust side of the drier with pipes which do not place stresses and strains on the appliance.
10. If the compressed air production system is not fitted with a safety device (valve or pressure switch) you must fit a safety valve to each tank

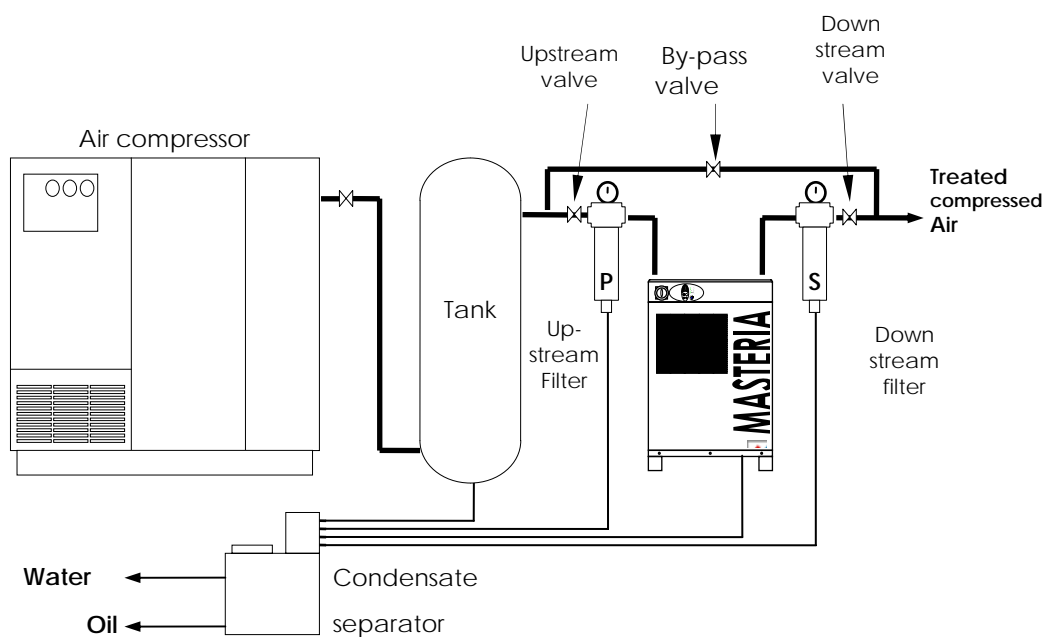
They must act directly on the tank with no intermediate position and possess a discharge capacity higher than the quantity of air inlet to the tanks, calibrated and sealed at the safety pressure of your network which must always be under 20 bars.

11. Check all connections for leaks.
12. Connect the drier and filter purge lines to your condensate treatment system (water/oil separation). Unless otherwise stipulated by applicable legislation, do not drain wastes to sewers without prior treatment.

* see ISO standard 8573-1



For air dryer inlet and outlet connexion's tightening, be sure not to use too much screwing tight power which would damage the evaporator coil piping of the thermal mass.



Typical layout

3.4 Electric connection



Risk of electric shock: the circuit must be wired by a qualified electrician in compliance with applicable legislation and the specifications of the appliances to be connected.

Check that voltage and frequency comply with the values shown on the manufacturer's plate on the machine and that they are within the tolerances shown on the electrical circuit diagram.

Check that the electrical installation complies with laws and regulations current in the place where the drier will be installed. Only use the electric cable provided with the machine or equivalent.

At the entry of the electric cable, a safety device must be installed for:

- Protection from short-circuits and voltage surges;
- Protection from the indirect contacts on the machine (short-circuit between phase and equipotential safety circuit) by automatically power supply cut-off as stipulated in IEC standard 364 - HD384 IEC 64-8;
- Protection from the failure of one phase in a three-phase electric installation.

For safety circuit dimensions, refer to the data shown in the electric diagram (maximum current, peak current, cable cross-section).

4 Use

4.1 First start up



Only start up the drier once you have thoroughly tested all the hydraulic, refrigeration and electrical connections.

1. Close the isolating valves on the drier and open the by-pass valve.
2. Check that the master switch is set to **O**.
3. Start the air compressor
4. Set the master switch to **I**. The drier digital display panel comes ON.
5. The refrigerating compressor and the fan start after a 2 minute safety time-out.
6. Pressurise the drier by slowly opening the inlet valve.
7. Slowly open the drier exhaust valve and then close the by-pass.
8. The drier will operate until the digital display panel indicates 00°C (32°F).
9. The drier will then stop for at least 2 minutes and will only start again when the digital display panel indicates 04 °C (or 39°F).

If the compressed air flow oscillates, it is normal for these values to be exceeded temporarily.

10. Check that the purge opens when the **TEST** button is pressed.
11. Check that the solenoid valve opens automatically every 5 minutes.

The drier is now ready to run normally.

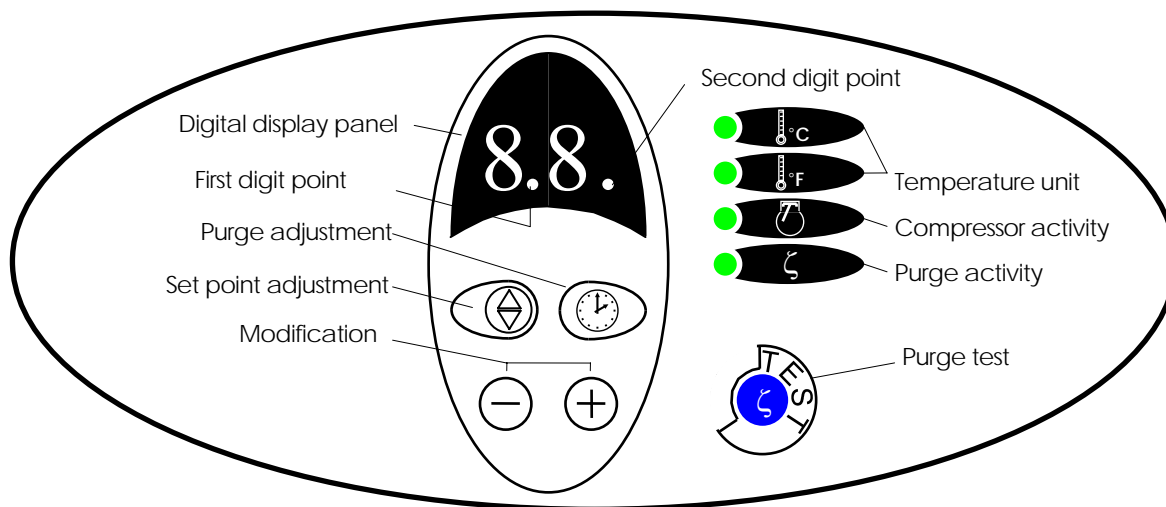
4.2 Normal Start up

The following key points will optimise daily use:

- Always turn your drier ON 5 to 10 minutes before the air compressor. In this way, your compressed air will be treated from the first m3.
- Your appliance can remain ON even if compressed air production is stopped. Its electronic regulation will automatically start and stop it to meet demand. You only need to turn off your drier at night, at the weekend or when you go on holiday!
- The standard drier parameters programmed in our factory meet 90% of all applications. If the conditions in your plant are standard (i.e. not a very hot environment, no partial drying upstream, no voluntary increase in the dew point...), do not spend time on modifying these parameters.

5 Programming

5.1 User interface



Digital display panel

- The digital display panel normally indicates a temperature in °C or °F depending on the LEDs indicating the measurement unit selected.
- During programming and as stipulated by the parameter selected, it indicates the value of the parameter in °C, °F or seconds.
- When the first digit point is blinking, that means the sensor is in default (cut or short circuited). When the second digit point is blinking, that means the sensor temperature measurement is out of the range the electronic card can read.

Buttons

5 buttons are used to visualise and modify the various parameters of the Mastéria unit's electronic regulation.

LEDs

4 LEDs indicate the operating condition of the drier or the regulation.

5.2 Changing set points

General

The factory-programmed set point normally meets the nominal capacity of your drier and is also appropriate for all the flows lower than nominal. A change of set point may be necessary to obtain a dew point higher than the standard dew point to authorise flows higher than nominal capacity or in a particularly hot environment.

Adjustment

- Press button for 15s.

The set point flashes on the digital display panel.

- Use the buttons to modify the set point

The adjustment range is from 0 to 10 °C (32 to 50°F)

- To record the new value, wait 5 seconds without pressing a key. The digital display panel reverts to its normal status (i.e. stops flashing) and indicates the variation between the measured value and the set point.

5.3 Changing purging duration

General Comments

Condensate purging automatically starts every 5 minutes for duration adjustable from 1 to 20 seconds. The factory setting meets nominal drier operation conditions. However, you may have to:

- Increase the duration of purging if the temperature of the air to be treated is higher than nominal and if you find liquid phase water downstream from the drier.
- Reduce the duration of purging if the temperature of the air to be treated is lower than nominal (case of a water-type final cooling agent downstream from the air compressor) or if the compressed air to be treated is not moisture-saturated (due to pre-drying or partial expansion)

Correct adjustment of the duration of purging is designed to limit compressed air leakage of to the bare minimum necessary for this operation.



Correctly regulated purging:

- expels condensates (oil/water emulsion) during most of the purging sequence.
- releases a short blast of dry, condensate-free, compressed air at the end of the purging sequence.

Adjustment

- Press on button  for 15 seconds.

The purge duration value flashes on the digital display panel.

- Use the buttons   to modify the purging duration value



The adjustment range is from 1 to 10 seconds.

- To record the new value, wait 5 seconds without pressing a key. The digital display panel reverts to its normal status (i.e. stops flashing).
-

In case of extreme conditions of air drier working, it's possible to adjust the closing time of the solenoid valve. Example, for adjusting the closing time 4 minutes (value adjusted in factory) to 2 minutes:

- Press on button  for 15 seconds.

The purge duration value flashes on the digital display panel.

- Use the buttons   to modify the closing time to 2 minutes for example
- To record the new value, wait 5 seconds without pressing a key. The digital display panel reverts to its normal status (i.e. stops flashing).

5.4 Purge test

General comments

Use the purging TEST button for:





- first start up
- routine testing,
- to depressurise the drier for maintenance.

Procedure

1. Press the **TEST** button. Check that the solenoid valve opens and those condensates run out. Check that the Purge LED comes ON.
2. Press the **TEST** button. Check that the solenoid valve is closed and that condensate purging stops.
3. Wait 5 minutes and re-check that purging is carried out correctly.
4. If necessary, change the purge duration (see § 5.3).

Note: Each pressure on the TEST button opens or closes the solenoid purge valve. If you leave the solenoid purge valve open, it will be closed automatically at the end of the pre-set purge duration time.

5.5 Choice temperature unit

- Press both  and  buttons simultaneously for 15 seconds.
- Use the   buttons to select the temperature unit shown on the LEDs.
- To record the new unit, wait 5 seconds without pressing a key. The digital display panel reverts to its normal status (i.e. stops flashing).

6 Maintenance preparation

6.1 Shut down and close all circuits



Various risks (flying objects, explosion, noise, electrocution...):
Always turn off all circuits before working on the drier. Follow the procedure below:

1. Open the by-pass valve
2. Close the upstream valve
3. Close the downstream valve
4. Set the master switch to **O**.
5. Depressurise the drier with the **TEST** button until internal pressure is zero.

6.2 Access inside the drier



Various risks (electrocution, explosion...): Before working inside the drier, turn the appliance **OFF** as stipulated in § 4.1.

- Lock the power supply cut-out switches **OPEN**.
- Lock the upstream and downstream valves **CLOSED** and the by-pass valve **OPEN**.
- Check that the appliance is depressurised by pressing the **TEST** button.

After carrying out the three procedures above, proceed as specified below for your drier model.

MPE 006 and 008

- unscrew and withdraw the lower screws of the front panel and slide it upwards to release the lock tabs. Take off the front panel.

MPE 010 to 125

- unscrew and withdraw the back screws of the upper panel and slide it backwards to release the lock tabs. Take off the upper panel.
- Otherwise, unscrew and withdraw the lower screws of the front panel and slide it upwards to release the lock tabs. Take off the front panel.

You can now work inside the drier risk-free.

6.3 Closing



Various risks (electrocution, explosion...): After having opened the appliance as stipulated in § 4.2 and before trying to restart the drier, you must carry out the operations detailed below.

After maintenance, proceed as specified below for your appliance model.

MPE 006 and 008

1. Replace the front panel by sliding it downwards to engage the lock tabs. Screw up the lower screws of the front panel.

MPE 010 to 125

1. Replace the upper panel by sliding it forwards to engage the lock tabs. Screw up the rear screws of the upper panel.

Otherwise, replace the front panel by sliding it downwards to engage the lock tabs. Screw up the lower screws of the front panel.

Then

2. Unlock the power supply cut-out switches.
3. Unlock the upstream and downstream valves and the by-pass valve.

You can now start up the drier and return it to the network.

6.4 Start-up and return to the network

After stopping the drier and disconnecting all circuits (see §4.1), follow the procedure below to return it to service.



Various risks (projection, explosion, noise...) When starting the drier, the valves upstream and downstream from the drier must be CLOSED and the by-pass valve must be OPEN.

1. Set the master switch of the drier to I.
2. Slowly open the downstream valve.
Take care: any rapid variation in pressure could damage the drier.
3. Slowly open the upstream valve.
4. Slowly close the by-pass valve.

7 Maintenance operation



Various risks (electrocution, explosion...): The following operations must only be carried out by personnel qualified in electrical and pneumatic systems.

The operations described in § 4.1 and 4.2 must be carried out **BEFORE** maintenance.

The operations described in § 4.3 and 4.4 must be carried out **AFTER** maintenance.

7.1 Cleaning the purge filter*

General comments

The solenoid purge valve is protected by a filter to prevent damage to the solenoid valve seals from metal particles or dust. This filter must be cleaned 1 week after the first start-up and then once per month. If this is not done, the filter will clog and it will not be possible to purge the system correctly. Liquid phase water will appear in the compressed air network.

Procedure

1. Close the manual valve on the purging line (see the refrigeration/pneumatic circuit diagram)
2. Unscrew the filter lock nut.
3. Withdraw the metal mesh, clean and refit.
4. Check the good condition of the seal and replace if necessary
5. Screw up the filter lock nut.
6. Open the manual valve on the purging line.

**You must comply with the recommendations at the beginning of this chapter.*

7.2 Solenoid valve maintenance *

General comments

The solenoid valve must always be protected by a filter to ensure that solid particles do not prevent it from opening and closing correctly. If particles do get through the filter and cause faulty operation of the solenoid purge valve, it must be dismantled and cleaned.

Procedure

1. Close the manual valve on the purging line (see refrigeration/pneumatic circuit diagram)
2. Disconnect the solenoid valve power supply
3. Disconnect the solenoid valve from the pipework and clamp it in a vice
4. Unscrew the coil lock nut and take it off the plunger
5. Unscrew the plunger from the valve seat
6. Check the O ring and the other components. Clean carefully.
7. Re-assemble the valve by reversing operations 1 to 5;

Do not over tighten the coil lock nut as this could prevent the valve from closing.

8. Refit the solenoid valve to the pipework, respecting the direction of the air flow indicated by an arrow on the body.
9. Reconnect the power supply to the solenoid purge valve.
10. Open the manual valve on the purging line

**You must comply with the recommendations at the beginning of this chapter.*

8 Test and maintenance scheduling

Frequency of intervention	Every day	Every month	Every 6 months	Every year	see §
Check for alarm messages.					
Check that the digital display panel indicates a value between 0 and 4C° (0 and 7° F)					
Test the purge					3.4
Test the compressed air inlet temperature and compare to the maximum value on the manufacturer's plate.					
Clean the purge filter *.					5.1
Check that the temperature of the ambient air complies with minimum and maximum values shown on the manufacturer's plate. Check that the room is well ventilated.					
Check that when operating the temperature of the upper part of the compressor is not too high (50C° Max). Test that the current consumed by the drier complies with values on the manufacturer's plate.					
Clean the solenoid purge valve *					5.2
Visually inspect the refrigerating circuit, the state of pipework and look for oil slicks which can indicate a loss of refrigerant gas* pressure.					4.2
Test the pipework connections.					4.2
Test the condition of the electrical contacts and connections *.					4.2
Check that the fan is not noisy.					4.2
Clean the condensing unit fins with a sponge or a clean compressed air jet. Check that the grids are not dirty or clogged *.					
Clean the condensing unit fins with a non-aggressive detergent *.					4.2

Important:

- This schedule is based on average operating conditions. In some cases it may be necessary to increase maintenance frequency.
- Clean the condensate purge filter on the purging system 1 week after start-up.

**You must comply with the recommendations at the beginning of this chapter.*

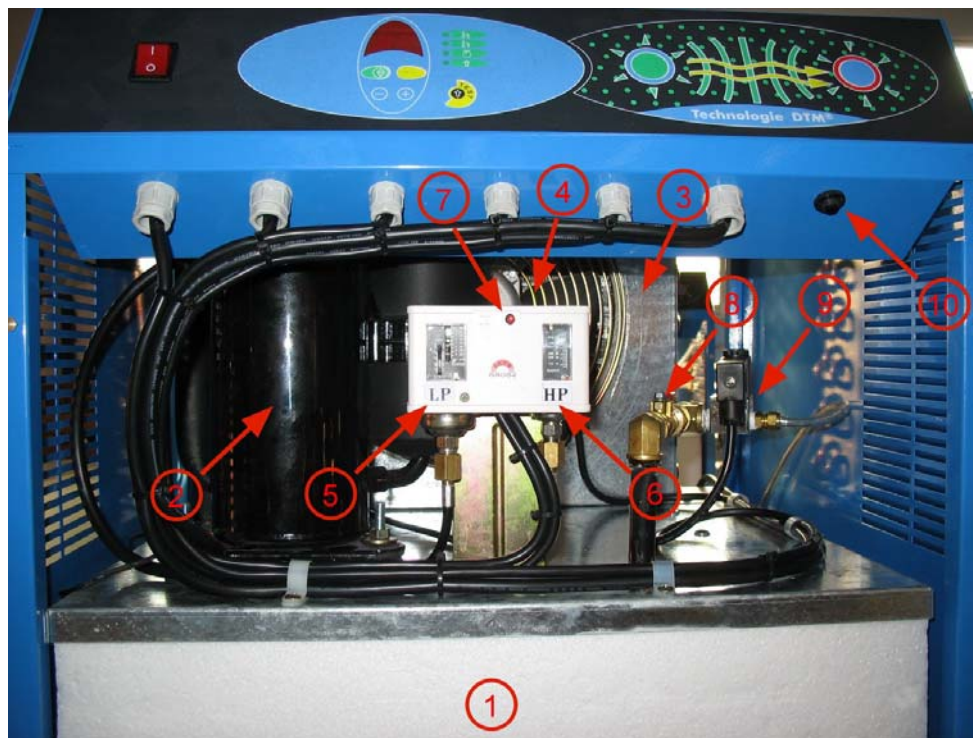
9 Alarm

When temperature sensor is **broken** or **short circuited**, the first digit point (see diagram § 5.1) will blink and the display show value ''00''. In the same time, the compressor of the drier cut off.

Replace the broken sensor by a new one (do it without tension on the drier).

After sensor has been replaced, switch on the dryer, the display will show normal temperature and the compressor will start after the 2 minutes delay.

10 Components interns arrangement



Rep	Description	Rep	Description
1	Thermal Mass	6	High Pressure switch
2	Compressor	7	High Pressure switch reset
3	Condenser	8	Valve + drain filter
4	Fan	9	Drain Solenoid valve
5	Low pressure switch	10	Compressor overload reset

11 Troubleshooting

PROBLEM	CAUSE	SYMPTOM	REMEDY
A. Dew point too high	Compressed air temperature too high.	The digital display panel indicates a value > 4C° permanently	Return the air inlet temperature to within the limits.
	Compressed air flow rate too high.	Ditto	Correct the air flow rate to within the limits of the drier.
	Compressed air pressure too low.	Ditto	Correct the pressure to within the limits.
	Ambient temperature Too high.	Ditto	Correct the temperature to within the limits.
	Dirty fins of the condenser.	Ditto	Clean the condensing unit fins.
	Condensing unit face clogged.	Ditto	Clean the condensing unit face.
	The fan runs backwards (three-phase)	Ditto	Correct electrical connection (phase inversion)
	Refrigerant gas leak	<ul style="list-style-type: none"> • The compressor runs all the time • The compressor top is very hot; 	Find the leak and repair it.
	The HP Pressure switch has tripped	The digital display panel is OFF	See note E.
B. Excessive drop in compressed air pressure.	Compressed air flow rate too high.	Pressure downstream from the drier lower than the expected value.	Reduce the compressed air flow rate.
	Condensates Frozen.	Pressure downstream from the drier lower than the expected value.	See note C.
	Exchanger Tubes soiled by impurities in the compressed air.	Pressure downstream from the drier lower than the expected value.	Wash the heat exchanger tubes with a non-aggressive detergent solution. Check the filter upstream from the drier.
C. Compressed air does not flow through the drier.	The condensates have frozen and block the passage as the probe is incorrectly positioned.	Compressed air does not flow through the drier.	Position the probe in the centre of the DTM heat exchanger.
	The condensates have frozen and block the passage as the set point is programmed too low.	After the starting the compressor, value 0 is reached in less than 2 minutes.	Increase the set point value.
	The condensates have frozen and block the passage as the electronic controller has failed.	The compressor stops. The compressor does not stop even if the digital display panel indicates 0 several minutes.	See note H. Change the electronic board
D. Condensates present downstream from the drier	The solenoid valve coil has failed.	No condensates or air are expelled when the TEST Button is pressed.	Replace the solenoid valve coil.
	The purge circuit is clogged	The purge filter is dirty.	Clean the filter
	The solenoid purge valve opening time is insufficiently long time.	No condensates or air are expelled when the TEST Button is pressed.	Increase the duration for which the solenoid purge valve opens.
	Solenoid valve plug clogged.	No condensates or air are expelled when the TEST Button is pressed.	Clean the solenoid valve
	The relay on the electronic board which controls the solenoid valve does not function.	Use a voltmeter to check if the relay contacts do not close when the TEST button is pressed	Replace the electronic board if the relay does not function.
	Distribution network pipework is in a "cold" environment in which the temperature is lower than the dew point temperature of the compressed air under pressure and the tubes are not lagged. In this case, condensates form on the internal surfaces of the pipes.	The drier functions problem-free. The cause of the problem is external.	Lag the pipework in "cold" environments.

PROBLEM	CAUSE	SYMPTOM	REMEDY
E. HP Pressure switch cuts in (manual)	The motorised fan does not function.	All the LEDs on the electronic board are OFF as if the power supply had failed.	Repair or replace the fan. Press the red re-set button on the pressure controller.
	Ambient temperature Too high.	Ambient air temperature conditions higher than maximum authorised value	Return the ambient temperature to within the limits by, for example, increasing room ventilation. Press the red re-set button on the pressure controller.
	Recirculation of hot air due to incorrect installation.	Very high temperature in room	Modify the position of the machine or the obstructions to eliminate air recirculation. Press the red re-set button on the pressure controller.
	Condensing unit fins dirty.	The digital display panel continuously indicates a value > 4°C.	Clean the condensing unit fins. Press the red re-set button on the pressure controller.
	Condensing unit face clogged.	The digital display panel indicates a value > 4°C continuously	Clean the condensing unit front face. Press the red re-set button on the pressure controller.
	Relatively high ambient air Temperature and fan turning in wrong direction (if three-phase power supply).	Cooling air passes first passes through the fan and then through the condensing unit.	Reverse two machine power supply phases. Press the red re-set button on the pressure controller.
	compressed air flow rate or temperature too high and high ambient temperatures at the same time.	High dew point (which means a high evaporation pressure of raised and higher purging from the separator).	Correct the temperature and the air flow to pre-set limits. Press the red button on the Pressure switch cap.
F. Low pressure (LP) Pressure switch cuts in. (auto.)	Refrigerant leak	The compressor stops before cooling the thermal mass to the pre-set value or compressor stop and start many times.	Have the circuit checked for leaks by a refrigeration technician and eliminate them. Have a refrigeration technician Refill the circuit. After each LP switch cut, no display during 2 minutes and compressor start automatically 2 minutes after.
	On first start-up if the ambient temperature is too low and the thermal mass is at the same temperature as the ambient temperature.	Ditto	Correct the ambient temperature by raising it above the minimum set point value.
G. Compressor protection system cuts in.	Compressed air flow rate and temperature too high and high ambient temperature at the same time.	<ul style="list-style-type: none"> The compressor head and body are very hot; the compressor stops and tries to start up again a few seconds later. 	Shut the compressor down and adjust compressed air flow rate and pressure to within the drier limits. Wait a few minutes before starting up the compressor again Check and replace the HP Pressure switch if necessary.
	Compressed air flow rate and temperature too high and refrigerating circuit empty.	<ul style="list-style-type: none"> The compressor head and body are very hot; the compressor stops and tries to start up again a few seconds later. 	Have the circuit checked for leaks by a refrigeration technician, refill the circuit. Check and replace the HP Pressure switch if necessary.
	The HP Pressure switch has failed.	Ditto	Check and replace the HP Pressure switch if necessary.
H. Sensor protection system cuts in	The compressor has stopped the control board display show 00 and the first digit point is blinking.	The temperature sensor is not connected or short circuited	

12 Design specifications

Model	MPE	004	006	008	010	015	020	025	030	040	050	060	075	100	125	150	
Flow rate*	m3/h	30	48	70	100	140	175	210	260	300	420	540	660	780	920	1020	
Max. Pressure	bar	16															
Connection	BSP	½"	¾"	1"				1"1/2			2"			2"1/2			
Power supply	230/1/50																
Max. current	kW	0.3	0.5	0.7	0.75	0.84	1.05	1.1	1.3	1.5	1.85	2.2	2.4	2.8	3.2	3.50	
Refrigerant Fluid		R134a				R407c											
Load	gr	see on the data sticker at the back panel															
HP Pressure switch	bar	18				26 (Manual Reset)											
LP pressure controller	bar	-							1 (automatic)								
Fan Pressure Switch	bar	-							14 / 18								
Dimensions																	
Width	mm	430	465		575			740			740			740			
Height	mm	430	585		685			945			980			1200			
Depth	mm	430	470		540			600			760			1075			
Weight	Kg	35	52	55	81	83	86	169	174	178	215	220	226	345	351	360	

* Nominal flow rate expressed to 1 absolute bar, 20°C as stipulated in ISO 7183 IN the FOLLOWING conditions:

- Air inlet temperature: 35°C
- Operating pressure: 7 bars
- Ambient temperature: 25°C
- Relative humidity: 60%
- Exhaust dew point: +3°C under pressure (-21°C at atmospheric pressure).

13 Appendices

13.1 Use of a purge with a level detection function



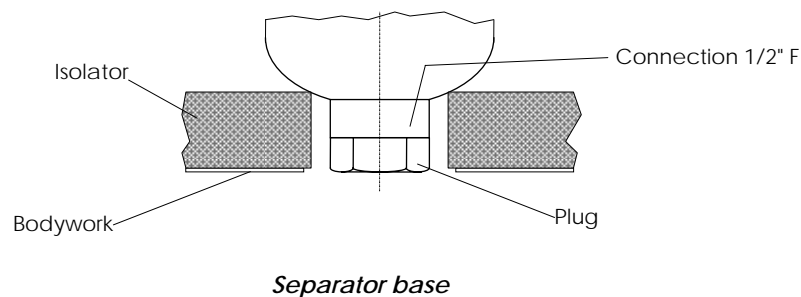
Various risks (electrocution, explosion...): The following operations must only be carried out by personnel qualified in electrical and pneumatic systems.

Before installation, the operations described in § 4.1 and 4.2 must be carried out.

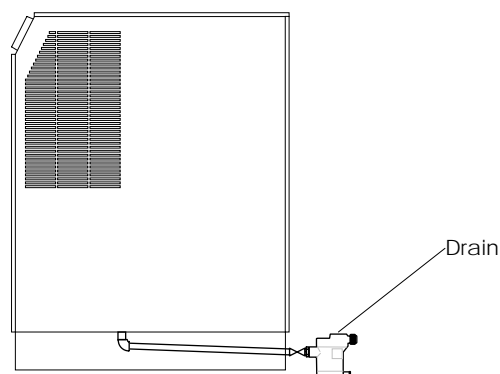
After installation, the operations described in § 4.3 and 4.4 must be carried out.

Your Mastéria drier is pre-fitted for an external purge with a level detection system. To connect this type of purge, you must:

1. Raise your drier sufficiently to enable the purge to be fitted underneath with creating a water pocket.
2. Remove the lower plug on the condensate separator.
3. To connect pipework to feed condensates to the external purge.
To use your external purge correctly, refer to the manufacturer's instructions.
4. Close the manual valve on the internal sequential purge.
This will inhibit the electronic board from opening and closing it.



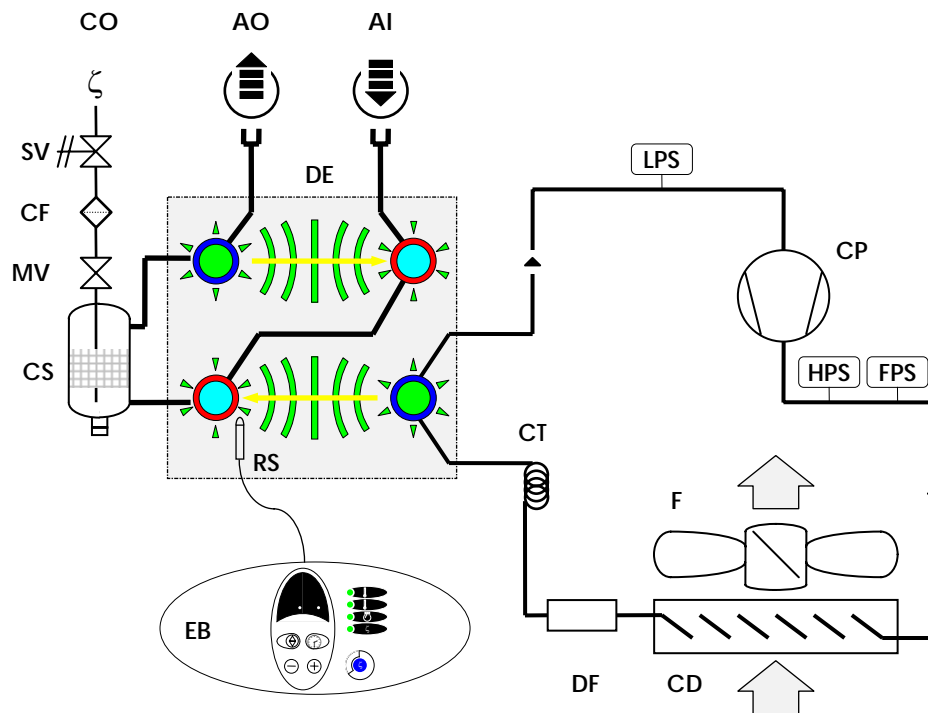
Separator base



Dryer fitted with an external drain

14 Circuit diagrams

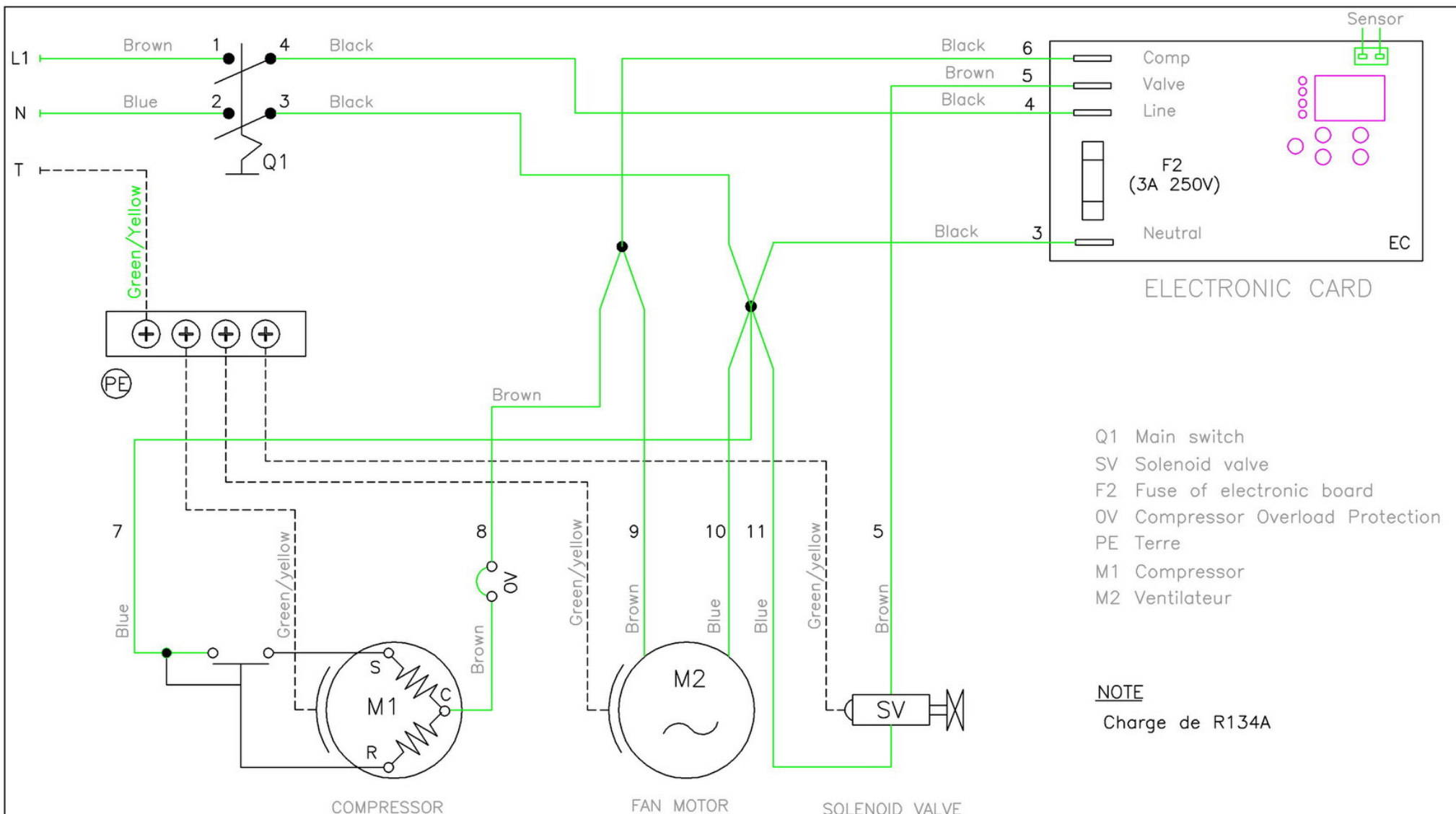
14.1 Refrigeration/pneumatic circuit diagram (SC0014A)




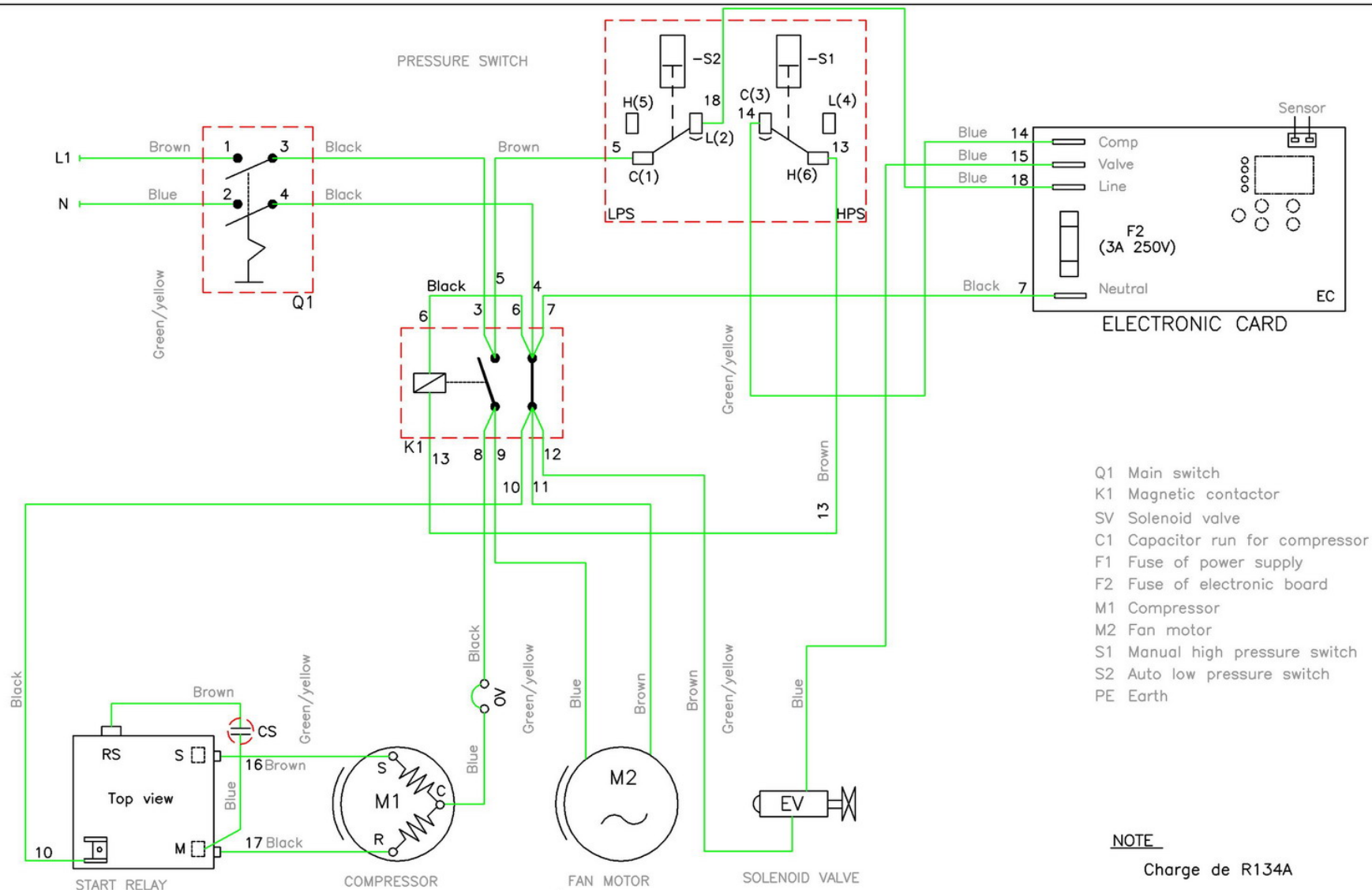
Label	Components	006-020	025-125
AO	Compressed air exhaust	Π	Π
AI	Compressed air inlet	Π	Π
CD	Condensing unit	Π	Π
CF	Condensate filter	Π	Π
CO	Condensate discharge	Π	Π
CP	Compressor	Π	Π
CS	Condensate separator	Π	Π
CT	Capillary tube	Π	Π
OF	DTM® heat exchanger	Π	Π
DF	Dehydrator filter	Π	Π
EB	Electronic board	Π	Π
F	Fan	Π	Π
FPS	Fan Pressure switch		Π
HPS	High pressure switch	Π	Π
LPS	Low pressure switch		Π
MV	Manual valve	Π	Π
RS	Probe regulation	Π	Π
SV	Solenoid purge valve	Π	Π

14.2 Wiring diagrams (SE00148, SE0015, SE0018, SE0017 and SE0018)

Label	Components
M1	Compressor
M2	Fan motor
EC	Electronic card
EV	Solenoid purge valve
HPS	High pressure switch
LPS	Low pressure switch
FPS	Fan pressure switch
Q1	General switch
F	Fuse for the electric power part of the dryer
K1	Power contactor
CS	Start capacitor
CR	Run capacitor
OV	Compressor overload protection
RS	Start relay



Scale : -	Date : 14/11/05		
Drawn by : D.B.	Checked by : -		
Wiring diagram air driers Masteria model MPE004		Rev	Modification
			Date
Drawing N° : SE0146	REV. : B	 ZA du Caillou - 3, Rue Jules Verne 69630 CHAPONOST	




NOTE

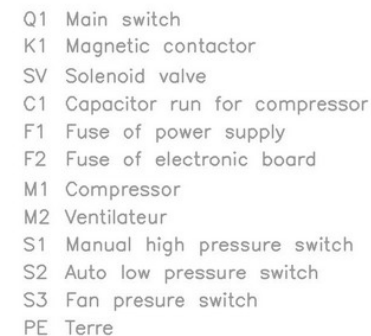
Charge de R134A

Scale : -	Date : 14/11/05			
Drawn by : D.B.	Checked by : -			
<div>Wiring diagram air driers Masteria model MPE006 to MPE008</div>				
Drawing N° : SE0015	REV. : F			

Rev	Modification	Date

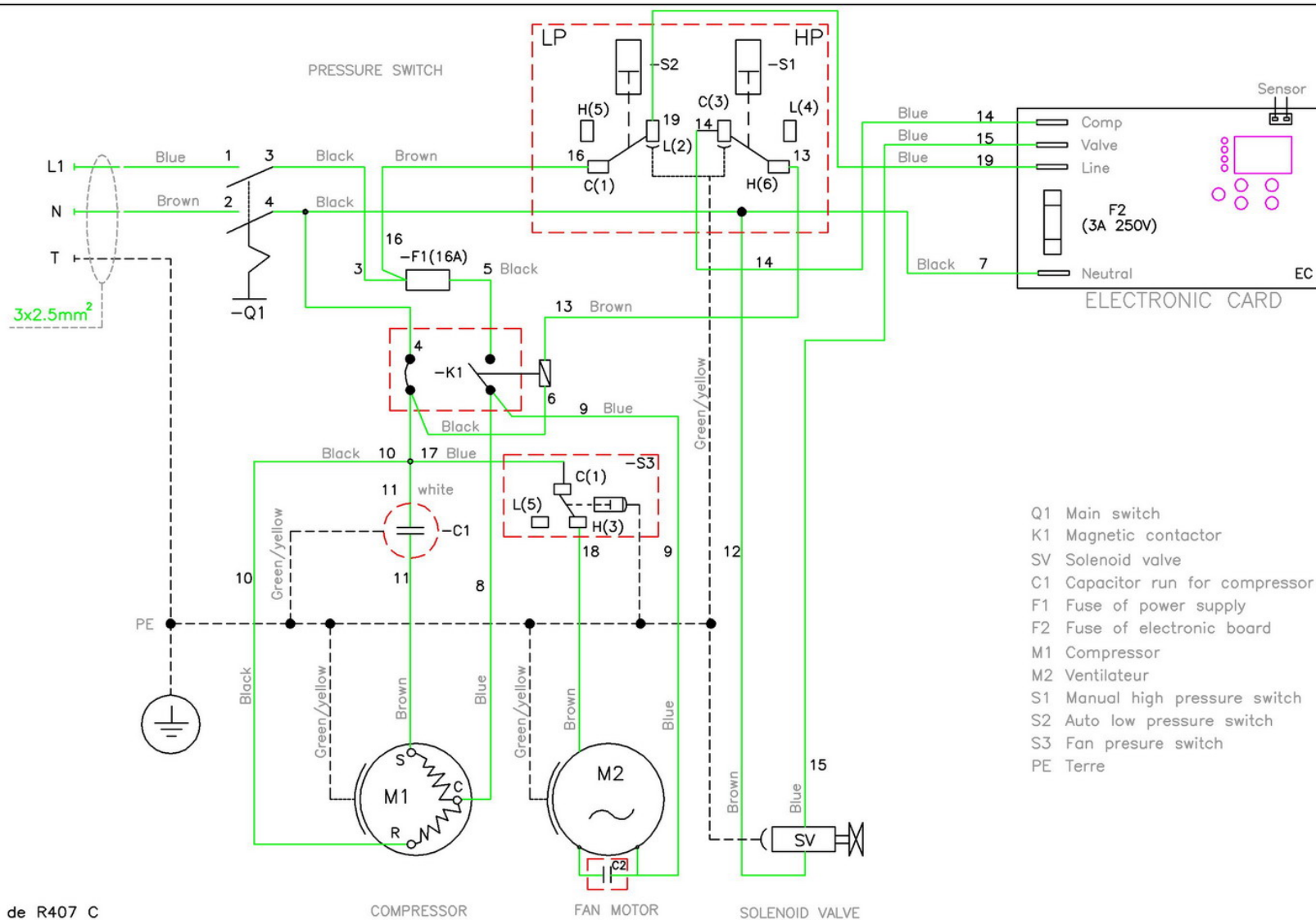


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69630 CHAPONOST




Charge de R407 C

Scale : -	Date : 14/11/05			
Drawn by : D.B.	Checked by : -			
<div style="border: 2px solid magenta; padding: 10px; text-align: center;"> <p>Wiring diagram air driers Masteria model MPE025 to MPE075</p> </div>		Rev	Modification	Date
		<div style="display: flex; align-items: center;"> <div> <p>ZA du Caillou - 3, Rue Jules Verne 69630 CHAPONOST</p> </div> </div>		
Drawing N° : SE0017		REV. : G		

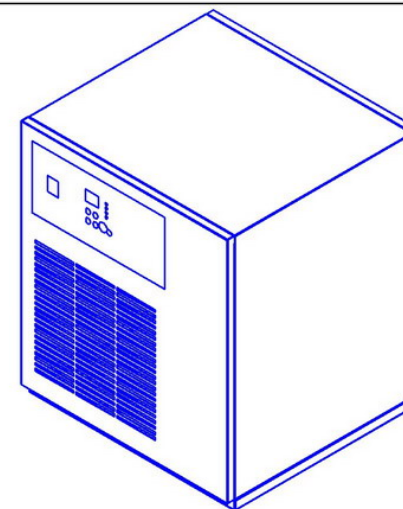
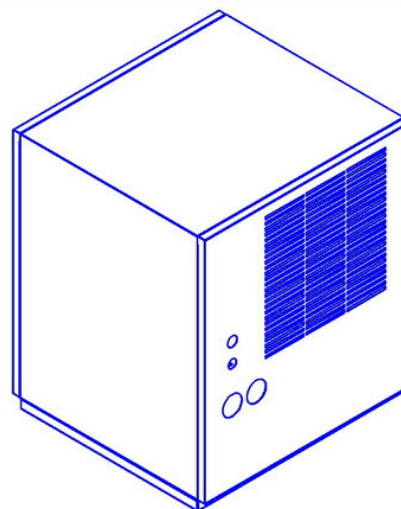


NOTE

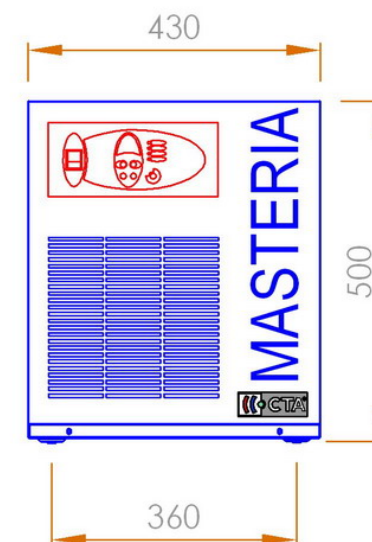
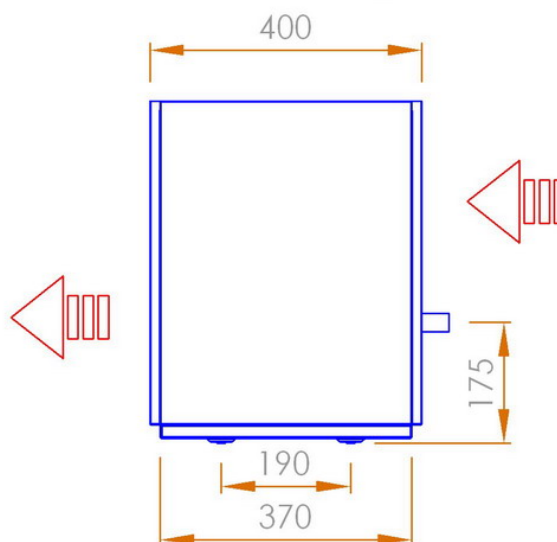
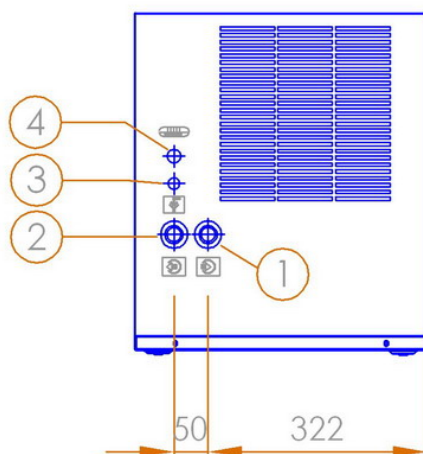
Charge de R407 C

Scale :	-	Date :	14/11/05		
Drawn by :	D.B.	Checked by :	-		
Wiring diagram air driers Masteria model MPE100 to MPE150					
Drawing N° :	SE0018	REV. :	G	Rev	Modification
				Date	
					
ZA du Caillou - 3, Rue Jules Verne 69630 CHAPONOST					


- ① Compressed air inlet (3/4" M gaz)
- ② Compressed air outlet (3/4" M gaz)
- ③ Condensates drain (plastic tube 6x8)
- ④ Power supply 230V/1Ph/50Hz
- ⑤ Free (hole Ø19)

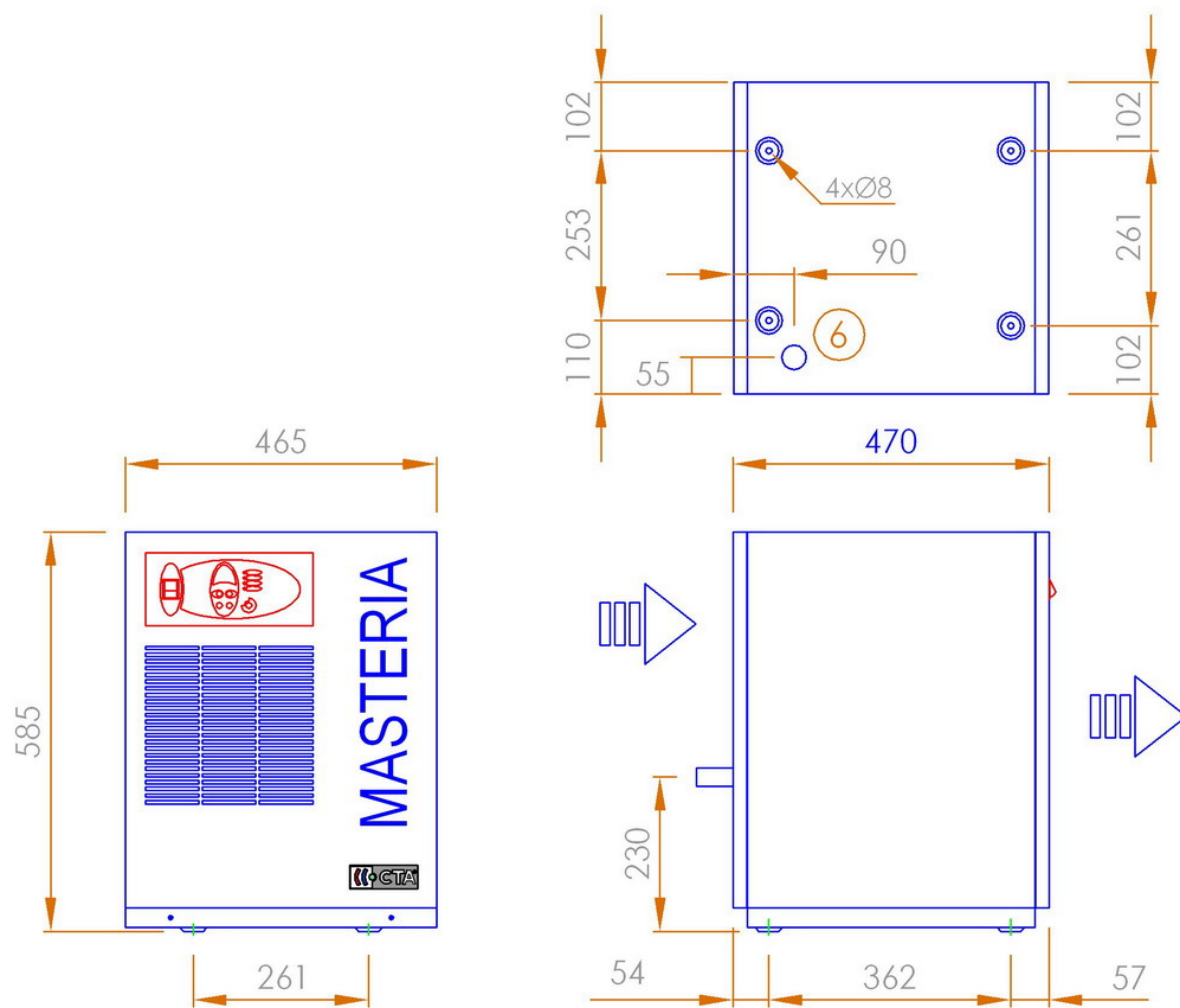


VUE ARRIERE

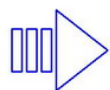
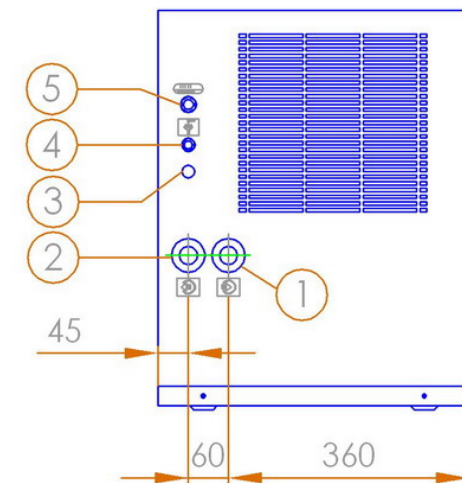


Cooling air flow direction

Scale : -	Date : 21/11/05			
Drawn by : D.B.	Checked by : D.B.			
<div style="border: 1px solid black; padding: 5px; text-align: center;"> Dimensions air driers Masteria model MPE004 </div>				
Drawing N° : EN0236	REV. : A	<div style="border: 1px solid black; padding: 5px;">  ZA du Caillou - 3, Rue Jules Verne 69630 CHAPONOST </div>		

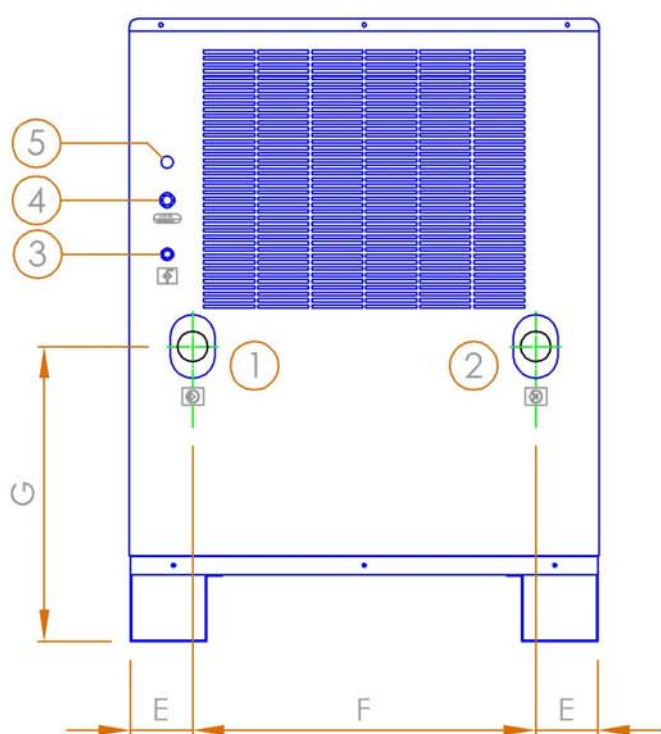
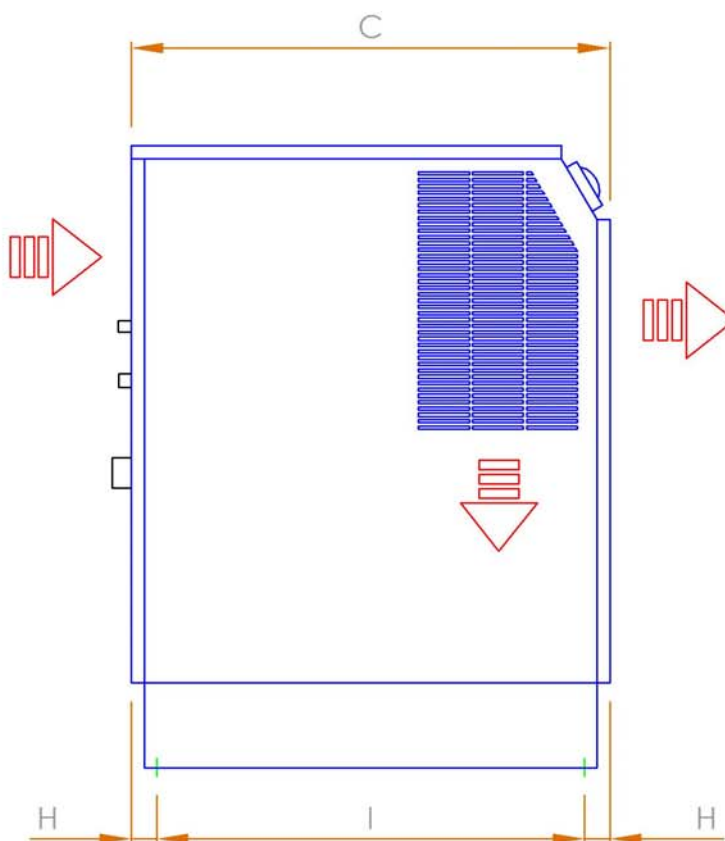
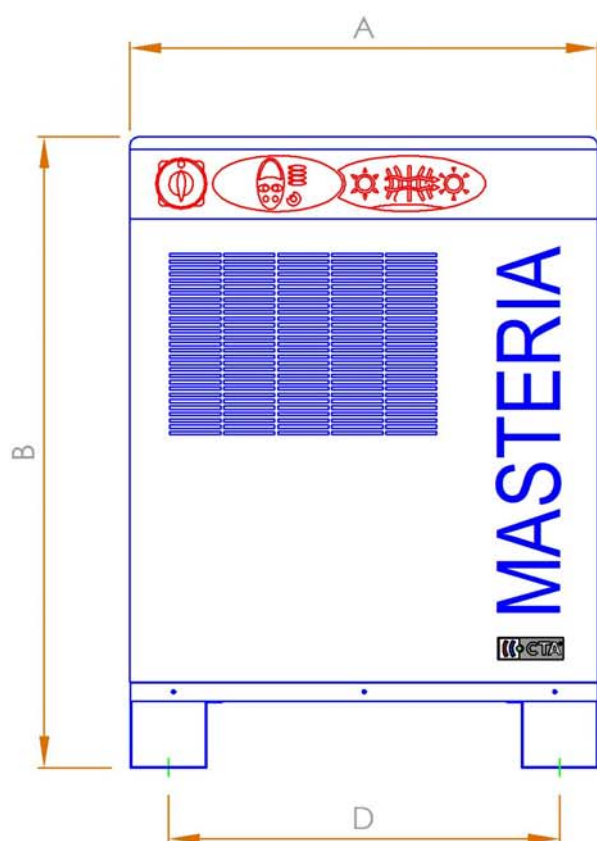


- ① Compressed air inlet (3/4" M gaz)
- ② Compressed air outlet (3/4" M gaz)
- ③ Condensates drain (plastic tube 6x8)
- ④ Power supply 230V/1Ph/50Hz
- ⑤ Free (hole Ø19)
- ⑥ Drain option under air drier (1/2" F gaz)



Cooling air flow direction

Scale : -	Date : 21/11/05			
Drawn by : D.B.	Checked by : -			
<div style="border: 1px solid black; padding: 5px; text-align: center;"> Dimensions air driers Masteria model MPE006 and MPE008 </div>				
Drawing N° : EN0016	REV. : D	Rev	Modification	Date
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> CTA ZA du Caillou - 3, Rue Jules Verne 69630 CHAPONOST </div> </div>				



- ① Compressed air inlet (gaz male)
- ② Compressed air outlet (gaz male)
- ③ Condensates drain (plastic tube 6x8)
- ④ Power supply 230V/1Ph/50Hz
- ⑤ Free (hole Ø19)

MPE	010-020	025-040	050-075	100-150
A	575	740	740	740
B	685	945	980	1200
C	540	600	760	1075
D	450	650	610	610
E	72	113	100	93
F	430	515	540	555
G	235	460	460	500
H	43	20	20	20
I	415	555	677	990
① ②	1"	1 1/2"	2"	2 1/2"
	Cooling air flow direction			

Scale : -	Date : 21/11/05		
Drawn by : D.B	Check by : -		
<div style="border: 2px solid magenta; padding: 5px; text-align: center;"> Dimensions air driers Masteria model MPE010 to MPE150 </div>		Rev	Modification
		Date	
Drawing N° : FN0017		<div style="text-align: center;"> <p>CTA</p> <p>ZA du Caillou - 3, Rue Jules Verne 69630 CHAPONOST</p> </div>	